

PARK ET AL. - 09/849,345
Client/Matter: 070120-0279468

REMARKS

Claims 6-18 are pending in this application. By this Amendment, the specification and claims 6 and 11-14 are amended, claims 1-5 are cancelled, and claims 15-18 are withdrawn from consideration. Paragraphs [0060], [0062], [0064], [0066], [0068], [0069], [0070], [0071], [0072], [0073], [0074], [0075] and [0079] in the specification are amended to remove the references to the claims. The subject matter of the original claims has been incorporated into the specification. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Applicants acknowledge the indication of allowable subject matter in claims 12 and 13. In response, claims 12 and 13 are rewritten in independent form. Applicants respectfully submit that the claims 12 and 13 are presently in condition for allowance.

Claims 6, 7, 11 and 14 were rejected under 35 USC §102(e) over U.S. Patent No. 6,132,587 to Jorne et al. ("Jorne"). This rejection is respectfully traversed.

Jorne discloses various electroplating devices, which incorporate methods to improve the uniformity of metal electroplating over an entire wafer. These methods include increasing the resistance of the electrolyte, increasing the distance between the wafer and the anode, increasing the thickness of the seed layer, increasing the ionic resistance of a porous separator placed between the wafer and the anode, placement of a rotating distributor in front of the wafer, and establishing contacts at the center of the wafer.

By contrast, amended claim 6 is directed to liquid treatment equipment that includes a first contact coming into electrical contact with a metal layer of a substrate being treated thereon the metal layer is formed at an approximate center of the substrate being treated. The equipment includes a housing that accommodates the first contact and prevents an electrolyte from intruding inside the housing when the first contact comes into electrical contact with the metal layer. This feature is not found in Jorne. The equipment also includes a power supply portion, disposed connected through a lead wire to the contact, that supplies power of a negative side or positive side from the first contact to the substrate being treated in electrical contact with the first contact. The liquid treatment equipment includes an electrode, disposed connected through a lead wire to the power supply portion, that supplies/recovers an electric current that flows, due to the power supply, in the electrolyte in contact with the metal layer through the metal layer.

Jorne does not disclose the liquid treatment equipment of claim 6. In particular, Jorne fails to disclose, teach or suggest at least the housing that accommodates the first contact and

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prevents an electrolyte from intruding inside the housing when the first contact comes into electrical contact with the metal layer. Claim 7 depends from claim 6 and is allowable over Jorne for at least the same reasons.

By contrast, amended claim 11 is directed to a liquid treatment method in which by applying a voltage between an electrode disposed in contact with a treatment solution accommodated in a liquid treatment bath and a substrate being treated having a metal layer, the substrate being treated is liquid treated. The method includes coming into electrical contact, due to a first contact member, with the metal layer of the substrate being treated at an approximate center of the substrate being treated. The method also includes preventing the treatment solution from intruding inside a housing that accommodates the first contact member. The feature is not disclosed by Jorne. The method also includes supplying power of a negative side or positive side from the first contact member to the substrate being treated in electrical contact with the first contact member.

Jorne does not disclose the liquid treatment equipment of claim 11. In particular, Jorne fails to disclose, teach or suggest at least preventing the treatment solution from intruding inside a housing that accommodates the first contact member. Claim 14 depends from claim 11 and is allowable over Jorne for at least the same reasons. Reconsideration and withdrawal of the rejection based upon Jorne is respectfully requested.

Claims 8, 9 and 10 were rejected under 35 USC §103(a) over Jorne in view of U.S. Patent No. 6,500,317 to Yoshioka et al. ("Yoshioka"). This rejection is respectfully traversed.

The Office Action correctly notes that Jorne does not disclose a second power supply portion. The Office Action relies on Yoshioka for allegedly disclosing this feature. Yoshioka, however, fails to disclose, teach or suggest all of the deficiencies of Jorne. In particular, Yoshioka does not disclose the claimed housing that accommodates the first contact and prevents an electrolyte from intruding inside the housing when the first contact comes into electrical contact with the metal layer. Accordingly, the combination of Jorne and Yoshioka does not render obvious the subject matter of claims 8, 9 and 10. Reconsideration and withdrawal of the rejection based upon Jorne and Yoshioka are respectfully requested.

Claims 1-5 were rejected under 35 USC §103(a) over Jorne in view of Yoshioka and further in view of U.S. Patent No. 5,167,792 to Kamitakahara et al. This rejection is respectfully traversed. In response, claims 1-5 are cancelled. Accordingly, the grounds for the rejection are now moot. Reconsideration and withdrawal of the rejection are respectfully requested.

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Applicants respectfully submit that the claims define subject matter, which is patentable over the prior art of record. Should any issues require further resolution, the Examiner is requested to telephone applicants undersigned attorney to discuss and resolve the issues. Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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